

FAA William J. Hughes Technical Center

Aircraft Components Fire Test Facility Building 287

The Aircraft Components Fire Test Facility, located in the Safety Research and Development area at the FAA William J. Hughes Technical Center, houses two test bays designed and used for component or intermediate-scale fire tests.

The larger of the test bays is 2000 sq. ft. and the smaller is 1600 sq. ft. Both bays are 20 feet high and have access through a large roll up door. Both bays are constructed of fireproof materials and contain large blowout panels for explosion protection. A centrally located instrumentation and control room contains test monitoring and data collection equipment and is connected to the bays via under floor conduits. In addition to the test bays, the building includes a small work and buildup area, a conference room, a computer lab, and office space for six fire safety personnel.

Recent testing in the building has included the development of new fire test standards for flight data recorders. The testing included propane burner tests, shown below as well as long-term elevated temperature tests, using a high-temperature programmable oven. The results were used in the development of a new Technical Standard Order (TSO) for flight recorders.

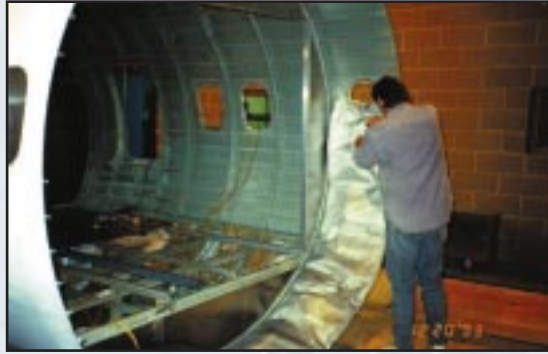


The testing of solid oxygen generators was conducted under various scenarios. This included the testing of a single canister (see photo below) under various conditions up to full-scale tests of over 100 generators in a Boeing 727 cargo compartment. The results were used as part of the Valujet investigation and as part of the justification for rulemaking to eliminate class "D" cargo compartments.



Testing was conducted to develop a methodology to use HFC 125 as a substitute for Halon 1301 in certification testing of fire suppressant/extinguishing systems. By substituting HFC 125 for Halon 1301, less Halon 1301, an ozone depleting gas, is expended during the certification tests of new systems.

The testing of thermal/acoustic insulation materials included the standardization of a small-scale flammability test method. This



method has been included in the Aircraft Materials Fire Test Handbook and has been adopted by major airframe manufacturers. Additionally, larger-scale mockup tests were conducted (photo above) in sections of an aircraft fuselage. The results of those tests have lead to the modification of the specification for thermal/acoustic insulation by at least one major airframe manufacturer.

The cargo compartment fire suppression testing included comparisons of class "D" and class "C" compartments for various fire

threats and suppression systems. The test article used was a Boeing 727 cargo compartment. Fire scenarios included exploding aerosol cans (photo below) and suppression systems ranging from the presently used Halon 1301 to nonconventional water mist systems. Work was in support of ongoing rulemaking.

To find out more about the Aircraft Components Fire Test Facility, contact:

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